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ABSTRACT

Based on the experiences of the Division of Computer-Based Instructional Development and Research at Miami-Dade Community College in developing interactive video programs, this paper explains what interactive video is, outlines the process used in creating such programs, and describes two specific applications of interactive video technology. First, interactive video is described as an instructional system that allows the computer to control the playing of segments of a videotape or videodisc. Next, the steps in developing an interactive videoprogram are outlined including: (1) determining terminal objectives (i.e., what the student should be able to do after completing the program); (2) determining enabling objectives (i.e., what he/she must be able to do prior to learning the terminal skills); (3) determining the sequence for teaching these objectives; (4) deciding what video segments and computer displays should be used to teach the objectives; (5) charting the program; (6) designing screen layouts; (7) writing the program; and (8) conducting a formative evaluation and revision. The following sections describe Mary F. Di Stefano's experience of developing interactive video programs for use in teaching English as a Second Language courses; and present Glenn Tross's discussion of the development of a microcomputer program, Mind Expansion through Exposure to Technology, which introduces faculty and others to communications technology. (HB)

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# INTERACTIVE VIDEO AT MIAMI-DADE COMMUNITY COLLEGE

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# Interactive Video at Miami-Dade Community College

by

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A number of interactive video programs have been developed through the Division of Computer-Based Instructional Development and Research at Miami-Dade Community College. It is the purpose of this paper to briefly explain what interactive video is, to outline the process used in developing such programs, and to describe two specific applications--"Shaping Paragraphs" and "Mind Expansion through Exposure to Technology (MEET)."

Interactive video is an instructional system that allows the computer to control the playing of segments of a video tape or videodisc. It combines the live action, sound, and color of video with the logic, branching, and text displays of computers. The system is synergistic. That is, the whole is greater than the sum of its parts.

Several features of an interactive video system make it possible to design very powerful instructional programs. The material to be learned can be presented in a variety of ways. For example, a concept may be described using computer text and then shown using a video segment. The student determines the pace for studying the material and, through his/her responses to questions, the direction the instruction takes. Interactive video is a non-linear type of instruction. Each individual response to a question may have its own feedback branch, and

response to a question may have its own feedback branch, and comprehension can be assessed after each step, or increment, of instruction. A mastery learning approach can be used, with the student being branched to remediation if the criteria for mastery are not met. These features change the role of the student from that of a passive receiver of instruction to an active participant in the learning process.

Regardless of what is to be taught, the development of an interactive video program should be done in a systematic manner. Development can be generalized to include the following steps:

1. Determine terminal objectives--i.e., what the student will be able to do after going through the program that he/she could not do before.
2. Determine enabling objectives--i.e., what the student must be able to do before learning the terminal skills.
3. Determine the sequence for teaching the enabling and terminal objectives.
4. Decide on what video segments will be used to teach the objectives.
5. Decide on what computer displays will be used to teach the objectives and assess learning.
6. Chart the program to show its logic and progression.
7. Design screen layouts.
8. Write and debug the program.
9. Do a formative evaluation--i.e., take several students through the program and see where weaknesses are.

10. Revise--a process that may take you back to any step in the development process.

Adhering to this series of steps should insure that educationally sound programs are produced.

In the following sections we offer our thoughts individually on how and why we chose to use interactive video for presenting very different material to two distinct audiences at Miami-Dadè Community College. We followed the steps just described in the development of each program.

SHAPING PARAGRAPHS

by
Mary F. Di Stefano

Once upon a time, there was an English as a Second Language Teacher lost and forlorn in a maze of good instructional video material but with no very effective way to present, reinforce, "grind in" the concepts presented in the material; nor did she find herself able to provide complete feedback to herself and her students about their grasp of these concepts. The poor students also were lost and forlorn because while some thought the lessons on the video tapes were too fast or too difficult, others thought the lessons were too slow or too easy. So one bright day, at a Miami-Dade Communications Technology Committee meeting, Dr. Kamala Anandam, Director of Computer-Based Instructional Development and Research, made the forlorn teacher an offer she couldn't refuse, and suddenly all the ESL teacher's problems promised to vanish...

That ESL teacher was I.

When Maureen O'Hara, Chairperson of M-DCC's New World Center Campus

Institute of Culture and Language Training, appointed me ICLT's Language Laboratory Coordinator, her dream of developing and implementing support programs in reading, writing, speaking, and listening for our ESL students also became my dream and my purpose. Maureen had always been searching for ways of making our language laboratory a "fully functioning instructional support unit." Consequently, my "blue skies in sight" and my "handsome prince" were Dr. Anandam's offer to provide me with all the human help and mechanical tools necessary to undertake an interactive video project. In this way, I could accomplish my long-standing goal of efficiently using instructional video material in a way that would allow students and teachers to "interact with," "respond to," and "learn from" a tailor-made program that was sound and competency-based.

Finally, with the expertise, resourcefulness, and excellent hard work of Glenn Tross, Instructional Design Specialist, and Lorne Kotler, RSVP Coordinator for Basic Skills, both members of M-DCC's Computer-Based Instructional Development and Research Division, our dreams have become reality. Using the unit on PARAGRAPH ORDER from the well-known Dallas County Community College video series "Writing for a Reason," Glenn, Lorne, and I began developing two interactive video programs that take students from a step-by-step review of how to recognize and construct good topic sentences to the recognition and construction of well-developed paragraphs containing deductive and inductive forms of expository writing.

At strategic points, the video segment is interrupted and students

are asked questions about what they have just seen. Then during review segments as well as instructional segments students are routed and, if necessary, rerouted to appropriate parts of the program, according to the types of errors they make, and are continuously given opportunities to review previously learned objectives before undertaking new program segments. Additionally, students are asked to hand in assignments which they complete as they participate in the interactive lessons. Students' ability to exit from a lesson is carefully controlled to allow each student maximum instructional benefit from and satisfaction in performing a task completely and well.

The flexibility of interactive video allows students to relax, concentrate on, and enjoy the interactive learning process without being afraid of working with a machine. Students learn that man has another best friend: the microcomputer with the maxi-capability of making individualized learning not a tedious task, but one that is self-paced, gradual, and progressive. Indeed, our project has opened a new realm of possibilities in the area of ESL training.

With the establishment of the college-wide Communications Technology Committee by M-DCC President, Dr. Robert H. McCabe, and with the smaller campus-wide technology committees, M-DCC's administration has shown a commitment to offer college faculty, staff, administration, and students enrichment through meaningful and effective technologies such as interactive video. These technologies bring "the essentials" to learners and allow them to gradually reinforce their knowledge, skills, and functions as human beings. In fact, interactive video is a

fundamentally human activity because the human element is what gives "interactive" all its meaning.

MEET

by
Glenn Tross

The Information Age. More and more we hear this or a similar term being used to describe the direction in which technology seems to be moving our society. Technological innovations in the information/communication fields are growing at a fantastic rate and are becoming increasingly difficult to keep up with. How will the implementation of these innovations affect the way we live? What are the capabilities and limitations of these technologies? What criteria do we use to examine and evaluate them? These questions are critical to our understanding and coping with the Information Age.

The main goal of the Division of C-BIDR could perhaps be described as assisting the faculty to understand communications technology and use it in the teaching process. This is done in a number of ways, including the production of faculty development programs that focus on this technology. The microcomputer program "Mind Expansion through Exposure to Technology" (MEET) is our attempt to introduce faculty and others to the exploding communications technologies and to provide guidelines for answering the foregoing questions.

MEET uses Programs 1 and 2 of the Canadian television series "Fast Forward," produced by Jim St. Lawrence, to give examples of the types of

technologies being developed and to describe future directions these innovations may take. After viewing a video segment, the participant is shown a number of ways the implementation of such technology may affect our lives and is asked to choose which one of them he or she feels is most likely to occur. For example, there is a video segment on information networks that shows various systems and discusses the type of system we are moving toward. After viewing this segment, the participant is shown the following question:

> What future scenario do you see resulting from this technology?
>
> 1. Television programming becoming more diverse
> 2. The interactive nature of information networks changing the way we live
> 3. Information networks eliminating the need for newspapers

There are no incorrect answers to these speculative questions. The chosen option is simply discussed further.

It is a goal of the program to orient faculty to these emerging technologies and how they will affect us. Additionally, it is assumed that by looking into the future one becomes less fearful of what it holds in store. There is a new form of stress that goes by several names (Innovation Overload, Technologic Stress Syndrome, etc.). This stress occurs in people who become overwhelmed by the sheer number and potential power of new technologies. MEET is an attempt to ease the shock by preparing for the Information Age.

As can be seen from the foregoing two program descriptions, quite dissimilar material can be presented using interactive video. The steps

involved in development remain the same regardless of the material used or the system used. The two programs just described were created using two very different hardware/software systems (Gentech's Genwriter III for "Shaping Paragraphs" and BCD's Instructor 3.0 for MEET), but by following a similar series of developmental steps, they both consistently give attention to what the student will be able to do after instruction. By keeping these terminal objectives in mind, one can use any medium to produce efficient and effective instructional packages.

As mentioned in the MEET section, it is the goal of the Division of Computer-based Instructional Development and Research to assist faculty in utilizing the new technology. This is done in a number of ways, which include evaluating hardware and software and providing help and training in using them. The guidelines and programs described in this paper represent attempts to reach that goal.

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